Amendments to the Claims

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A screening device, comprising:

a frame shaped to be engageable to a head between a reference location, at least one ear, and a signal detection location;

a reference active electrode attached to the frame at the reference location, wherein the reference active electrode includes a local amplifier co-located with the reference active electrode such that the local amplifier co-located with the reference active electrode is also attached relative to the frame as an integral part of the reference active electrode, wherein the local amplifier co-located with the reference active electrode is operable to amplify signals sensed by the reference active electrode;

a signal active electrode attached to the frame at the signal detection location, wherein the signal active electrode includes a local amplifier co-located with the signal active electrode such that the local amplifier co-located with the signal active electrode is also attached relative to the frame as an integral part of the signal active electrode, wherein the local amplifier co-located with the signal active electrode is operable to amplify signals sensed by the signal active electrode;

an auditory signal producer ~~positioned~~ positionable by the frame over the ear;

an auditory evoked response (AER) data processor operably configured to initiate an auditory signal from the auditory signal producer and to perform a signal processing operation on an AER signal sensed across the reference and signal electrodes and amplified by the local amplifier co-located with the reference active electrode and the local amplifier co-located with the signal active electrode; and

a diagnostic analyzer operably configured to characterize the amplified AER signal and to compare the characteristics to at least one predetermined AER characteristic, wherein the at least one predetermined AER characteristic is associated with a neurological condition.

2. (original) The screening device of claim 1, further comprising a cantilevered flexible arm connecting the signal electrode to the frame.

3. (original) The screening device of claim 1, further comprising a second signal electrode attached to the frame.

4. (original) The screening device of claim 3, further comprising a multiplexing channel controlled by the AER data processor for selectively sampling the first and second signal electrodes.

5. (original) The screening device of claim 3, wherein the AER data processor is further operatively configured to sample the first signal electrode at a low frequency sampling rate and to sample the second signal electrode at a high frequency.

6. (original) The screening device of claim 5, further comprising a multiplexing channel controlled by the AER data processor for selectively sampling the first and second signal electrodes.

7. (original) The screening device of claim 3, further comprising a flexible printed circuit harness containing the electrodes and communication paths to the AER data processor and shaped for conforming to the head under the resilient urging of the frame.

8. (original) The screening device of claim 1, further comprising a test subject identification device, the AER data processor further operably configured to associate a test subject identification with the AER signal.

9. (original) The screening device of claim 8, wherein the test subject identification device comprises a barcode scanner.

10. (original) The screening device of claim 8, wherein the test subject identification device comprises a radio frequency identification scanner.

11. (previously presented) The screening device of claim 1, wherein the at least one predetermined AER characteristic comprises a dyslexic AER characteristic.

12. (original) The screening device of claim 11, further comprising a communication link, wherein the diagnostic analyzer is coupled to the frame via the communication link.

13. (original) The screening device of claim 1, wherein the AER data processor comprises a control module integral to the frame.

14. (original) The screening device of claim 1, wherein the frame includes a disposable portion that includes the electrodes.

15. (original) The screening device of claim 1, wherein the AER data processor includes digital storage configured to store the AER data.

16. (original) The screening device of claim 1, wherein the AER data processor is further operably configured to perform a sequence of screening tests, and to store in the digital storage AER data associated with each test.

17. (original) The screening device of claim 16, wherein the digital storage further includes a predetermined test protocol.

18. (original) The screening device of claim 1, wherein the AER data processor is further operably configured to generate a user indication of a test condition.

19. (original) The screening device of claim 1, wherein the frame is operably shaped to connect between the ears across a front portion of a patient's head.

20. (original) The screening device of claim 1, wherein the frame comprises a recurved frame and a pair of ear cups attached to each end thereof.

21. (original) The screening device of claim 1, wherein the frame comprises an ear cup having a resilient portion inwardly affixed thereto.

22. (original) The screening device of claim 1, wherein the frame further comprises an ear cup having an electrode registered caudad to the sylvan fissure of a subject.

23. (currently amended) A method of performing auditory evoked response (AER) testing, comprising:

positioning a device on the head of a subject, the device positioning a sound producer, a reference electrode, and a signal electrode;

generating an auditory stimulus with the sound producer;

recording AER data across the reference and signal electrodes, wherein the act of recording AER data comprises receiving electrode voltage data as sensed by the reference electrode and the signal electrode;

connecting the device to a data analyzer;

characterizing the AER data with the data analyzer; and

comparing the AER data characteristics to at least one predetermined AER characteristic with the data analyzer, wherein the at least one predetermined AER characteristic is associated with a neurological condition; and

detecting whether the sensed electrode voltage exceeds a threshold, wherein the act of generating the auditory stimulus further comprises imposing a sampling delay in pursuit of a resting brain state in response to determining that the sensed electrode voltage exceeds a threshold.

24. (previously presented) The method of claim 23, wherein recording the AER data further comprises:

storing the AER data on the device; and

transmitting the stored AER data to the data analyzer.

25. (original) The method of claim 23, wherein positioning the device on the head of the subject further comprising positioning the subject face up and positioning the device across a forward portion of the subject's head.

26. (cancelled)

27. (original) The method of claim 23, wherein generating the auditory stimulus further comprises:

detecting a resting brain wave; and

initiating the auditory stimulus at a predetermined slope of the resting brain wave.

28. (currently amended) The method of claim 23, further comprising:

monitoring the AER data for the presence of an artifact; and

in response to determining the AER data to contain an artifact, imposing a sampling delay and repeating an epoch of auditory stimulus and sampling AER data.

29. (original) The method of claim 23, further comprising:

accessing a remotely stored auditory testing protocol into the device; and

disconnecting the device prior to positioning a device on the head of the subject.

30. (previously presented) The method of claim 23, wherein the device positions the reference electrode, a low frequency signal electrode and a high frequency signal electrode, the method further comprising sampling the low frequency signal electrode at first sampling rate and sampling the high frequency signal electrode at a higher second sampling rate.

31. (currently amended) The method of claim 23, wherein the device positions the reference electrode, a first signal electrode and a second signal electrode, [[and]] the method further comprising sampling the first and second frequency signal electrodes, wherein sampling the first and second frequency signal electrodes further comprises for each electrode:

sensing an EEG voltage;

converting the sensed voltage to a digital value;

sampling the digital value at a predetermined sampling rate over a multiplexing channel; and

recording the multiplexed digital data.

32. (currently amended) The method of claim 31, wherein sampling the digital value at a predetermined sampling rate over the multiplexing channel ~~comprises~~ further comprises sampling the first signal electrode at low frequency and sampling the second signal electrode at a high frequency.

33. (new) A method of performing auditory evoked response (AER), comprising:

positioning a device on the head of a subject, the device positioning a sound producer, a reference electrode and a signal electrode;

generating an auditory stimulus;

recording AER data across the reference and signal electrodes;

connecting the device to a data analyzer;

characterizing the AER data with the data analyzer;

comparing the AER data characteristics to at least one predetermined AER characteristic with the data analyzer, wherein the at least one predetermined AER characteristic is associated with a neurological condition;

monitoring the AER data for the presence of an artifact; and

in response to determining the AER data to contain an artifact, imposing a sampling delay and repeating an epoch of auditory stimulus and sampling AER data.